

DRINKING WATER SOURCE PROTECTION

ACT FOR CLEAN WATER

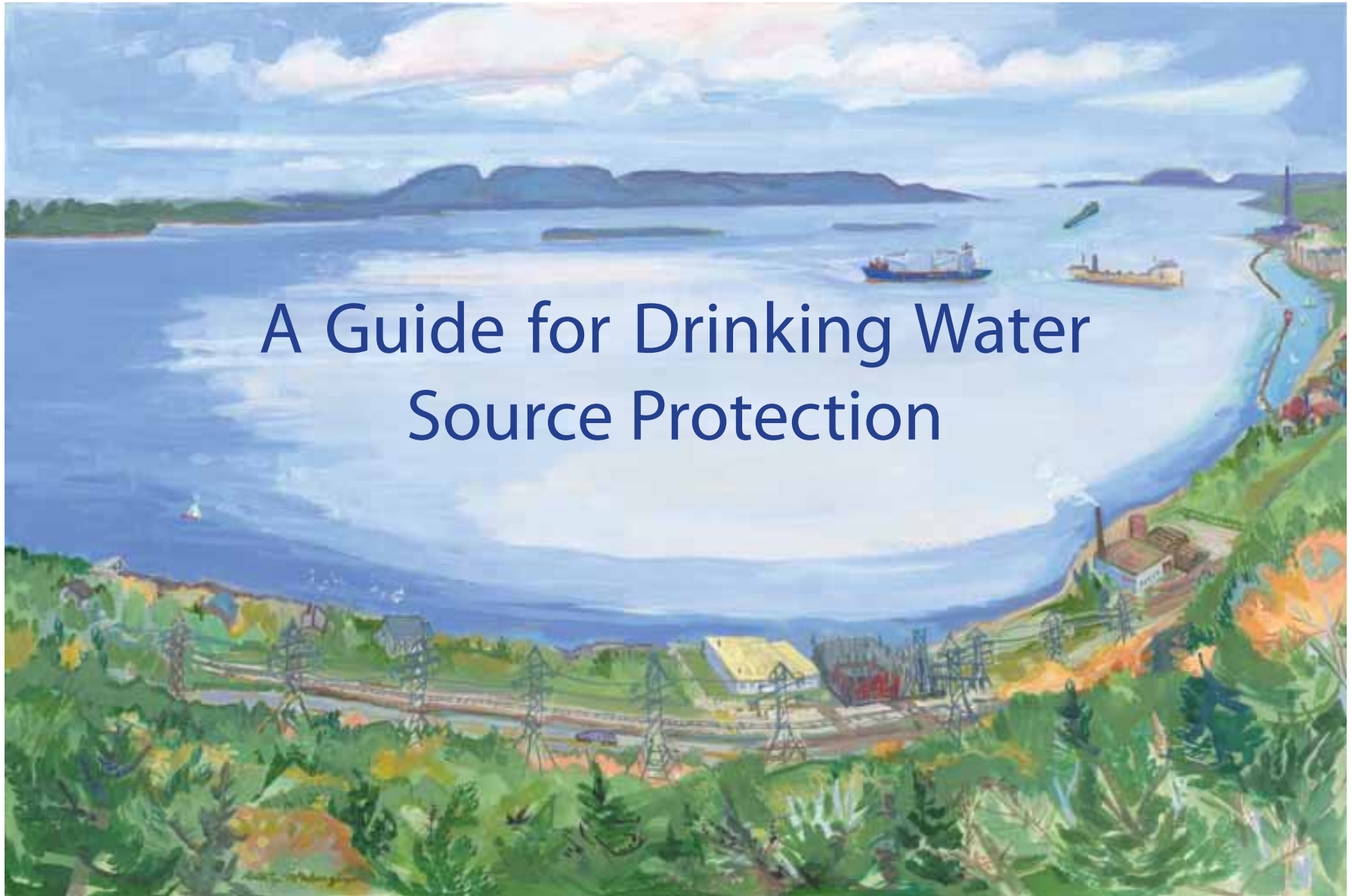


Lakehead Region
Conservation Authority

Conserve Today... For A Better Tomorrow

LAKEHEAD Source Protection AREA

A Guide for Drinking Water Source Protection



DRINKING WATER SOURCE PROTECTION - Ensuring the sources of Municipal residential drinking water are safe and clean, now and for the future.

The overall objective of the Lakehead Source Protection Committee, in partnership with the Lakehead Source Protection Authority, local Municipalities and the Ontario government, is to protect the quality and quantity of present and future sources of Municipal residential drinking water in the Lakehead Source Protection Area.

The Lakehead Source Protection Committee will continue to work and consult with stakeholders and participants in the local community to gather technical knowledge on which well-informed, consensus-based decisions can be made in an open and consultative manner.

The Lakehead Source Protection Committee will aim to propose policies in the Lakehead Source Protection Plan that are appropriate, effective, economical and fair for local Municipalities and will make use of the available science to assess Municipal residential drinking water threats and issues.

Where there is uncertainty, the Lakehead Source Protection Committee will be mindful of the precautionary approach.

Produced by:

The Lakehead Region Conservation Authority/Lakehead Source Protection Authority

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DRINKING WATER SOURCE PROTECTION

Protecting Our Water Resources

Water is necessary for every aspect of our lives. In fact, try to picture a day without water - its difficult!! We are fortunate to have an abundance of healthy groundwater, lakes and rivers in Northern Ontario to use for our drinking water - but we must be careful not to take these natural resources for granted.

Protecting the quality and quantity of the water we have is an important part of Source Protection. Though Source Protection under the "Clean Water Act, 2006" is aimed at protecting Municipal residential drinking water, this guide provides information on how to protect drinking water in your community; whether you are on a Municipal or private drinking water system. By working together we can help ensure that our clean and abundant water resources remain that way for all of our present and future drinking water needs.



The Lakehead Region Conservation Authority is a community-based environmental agency, responsible for the wise management of renewable natural resources including water in our watershed.

The Lakehead Region Conservation Authority (LRCA) became involved in Source Protection when the Ontario Ministry of the Environment (MOE) and the Ontario Ministry of Natural Resources (MNR) contracted Conservation Authorities across the province to facilitate and coordinate Source Protection Planning for Municipal residential drinking water under the "Clean Water Act, 2006".

Property owners can protect water quality and quantity by being environmentally responsible.

Safe, clean drinking water; it's everyone's responsibility.



Source Protection begins with each of us taking responsibility to protect our local water resources within the watershed of the Lakehead Source Protection Area. How we choose to live has a huge impact on our environment. Safeguarding water quality and quantity begins with how we use water within our homes and on our properties.

What is Source Water?

Source water is untreated water from surface and ground sources. Lakes, rivers and streams are examples of surface water, while an underground aquifer or spring is a source of groundwater. As water flows through the watershed, surface water is often fed by groundwater seeping through the ground and discharging into lakes, rivers and streams. In turn, the flow of surface water can penetrate the ground, providing a water source for groundwater aquifers. The water cycle influences both surface and ground water sources with the endless circulation of water from the atmosphere to the earth in the form of evaporation and precipitation (rain and snow).

What is Surface Water?

Surface water refers to water that collects on the surface of the earth to form lakes, rivers, streams, wetlands; and in some cases, it is where the water table associated with groundwater meets the earth's surface. Surface water is naturally replenished through rain and melting snow.

Surface water from the Great Lakes is the source of water that most Ontarians use for drinking water, cleaning, irrigation and industrial purposes. Lake Superior is an abundant surface water source that should not be taken for granted and what we do here at the head of the Great Lakes influences everyone downstream.

Kakabeka Falls



Mission Island Marsh



Cascades



Little Trout Bay



What is Groundwater?

Groundwater is water from rain or snow that seeps below the ground and pools in cracks and spaces beneath the earth's surface. It is a valuable resource as it makes up 2/3 of the world's fresh water supply. Groundwater supplies are not endless and can be depleted. Twenty-six percent of Canadians including most rural residents in the Lakehead Source Protection Area use groundwater to meet their daily needs for drinking, cleaning and irrigation. Human activities can pollute groundwater so severely that the damage may be very difficult and costly to clean up. It is especially important to protect groundwater sources for those who obtain their water from wells.

What is Source Protection? Why is it important to protect Source Water?

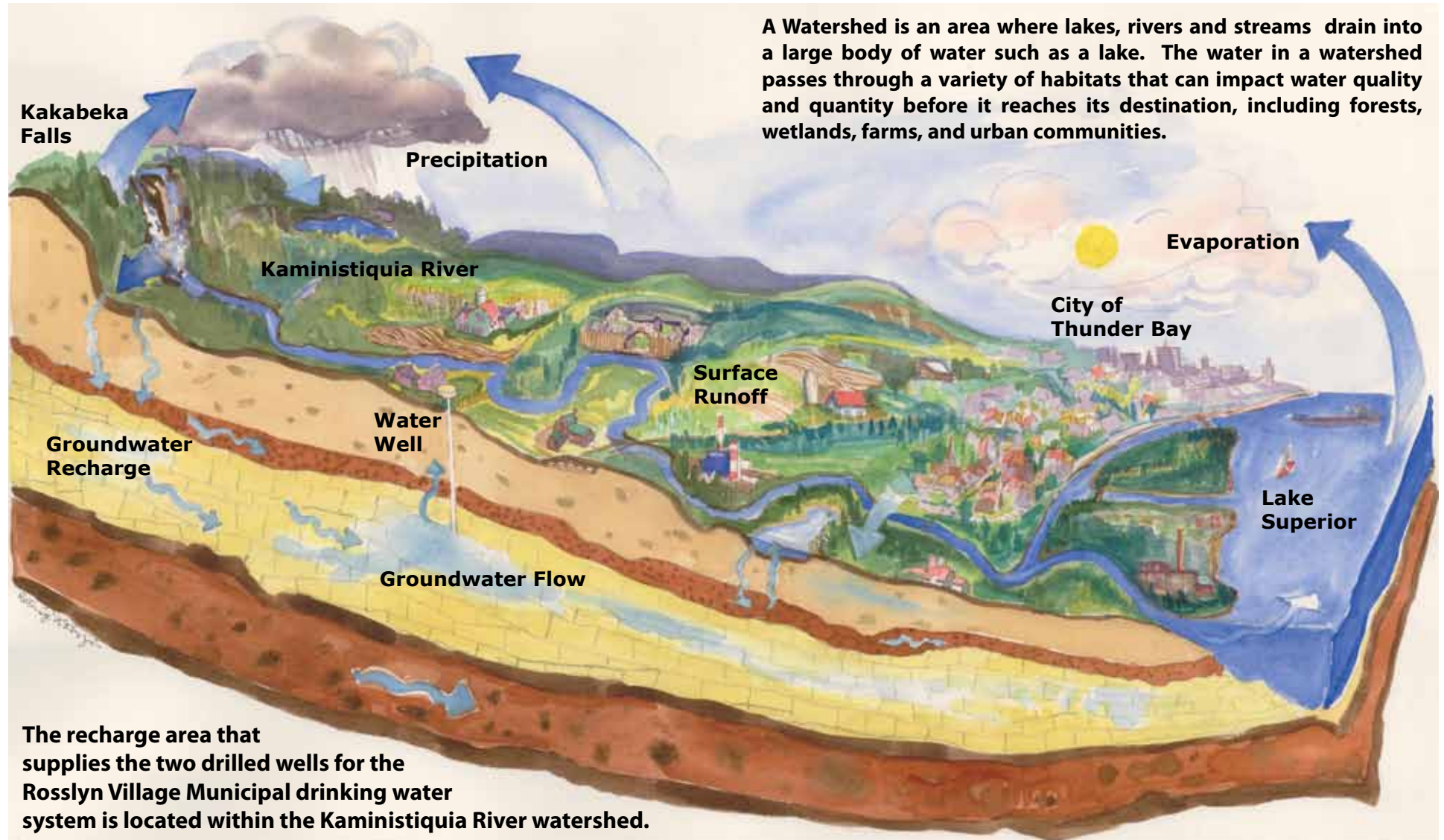
Source Water Protection is simply protecting the sources of water from contamination or over use. We can protect the sources of water by managing the influences on them from natural and human activities to ensure water quality and water quantity is maintained.

The incident in Walkerton, Ontario (2000) revealed how easily water can become contaminated and how damaging the consequences can be. While it costs money to protect water sources, the investment generates economic vitality and growth. Communities with clean water sources attract human settlement, development and business.

Source Protection & The Water Cycle

Our drinking water comes from lakes, rivers, streams or underground aquifers as part of the water cycle. Drinking water sources can be easily contaminated and have a limited tolerance for stress. In order to make sure we have enough clean drinking water from Municipal or private systems, we need to protect the sources of water by managing the influences on them.

The best way to protect sources of water is on a watershed basis because water flows across traditional jurisdictional boundaries such as Municipalities, towns and cities.



The recharge area that supplies the two drilled wells for the Rosslyn Village Municipal drinking water system is located within the Kaministiquia River watershed.

Creation of the “Clean Water Act, 2006”

The “Clean Water Act” was passed into law in 2007. The “Act” was legislated in response to the Walkerton tragedy when seven people died and more than 2,300 became ill as a result of a series of human and mechanical failures that allowed bacteria to enter into the Municipal water supply. Justice Dennis O'Connor was appointed Commissioner to lead a public inquiry to investigate the tragedy and provide advice on how similar events could be prevented in the future. In his report, Justice O'Connor recommended the development of a multi-barrier approach to protect Municipal residential drinking water in Ontario. The protection of water at its source was identified as a key first step to ensure a safe, clean supply of water for all our uses, now and in the future.

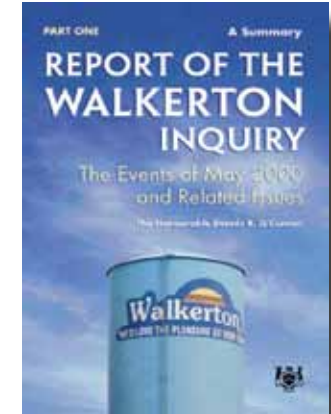
The “Clean Water Act” addresses Source Protection of untreated water from aquifers, lakes and rivers as the first step in a multi-barrier approach for Municipal residential drinking water systems through the development of local Source Protection Plans.



Source Protection for private wells and drinking water systems is the responsibility of private landowners with direction from the Ministry of the Environment, the Ministry of Health and Long Term Care and District Health Units.

The Multi-Barrier Approach has five parts:

- ◇ Protection of source water.
- ◇ Adequate water treatment.
- ◇ A secure water distribution system.
- ◇ Proper monitoring and warning systems.
- ◇ Well-thought out responses to adverse conditions.



Source Protection & the “Clean Water Act”

Source Protection is the risk management of untreated surface water and groundwater that supplies Municipal residential drinking water systems from contamination and overuse. Surface water sources are lakes, rivers, and streams. Aquifers and springs are considered groundwater sources. According to Justice O’Connor’s Report, Source Protection of our water resources needs to be addressed differently than it has in the past to prevent tragedies like Walkerton from happening in the future.

The “Clean Water Act, 2006” was passed into law on July 3, 2007. Legislated by the Government of Ontario, the “Act” defines how Municipalities, Conservation Authorities, stakeholders including First Nations and the public will work together to produce local Source Protection Plans across the province.

The “Clean Water Act, 2006” is focused on the protection of the sources of water for Municipal residential drinking water systems. Local Source Protection Plans will be developed on a watershed basis using the multi-barrier approach with source protection as the first step in the process.

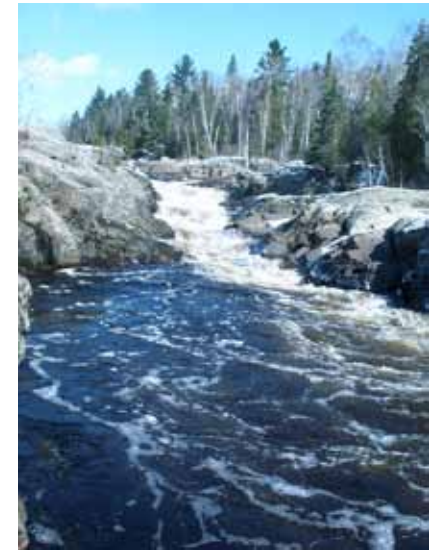
Plans are to be developed on a watershed basis to protect the local sources of Municipal residential drinking water in defined areas or regions outlined under the “Act”. Conservation Authorities with expertise in watershed management were chosen to form 19 Source Protection Areas and Regions with jurisdiction to create Source Protection Authorities and Source Protection Committees to guide the planning process.

The focus is on protecting the sources of Municipal residential drinking water as more than 80 per cent of Ontarians receive their drinking water from a Municipal system. It should also be noted that one third of Ontario Municipalities with drinking water systems have experienced water shortages in the last 10 years.

“It is cheaper and safer to stop water from getting polluted in the first place than to pay to clean it up later.”

The Source Protection Plan will examine land use and the impact activities in our region have on the sources of Municipal drinking water quality and quantity. Sound scientific research will guide an Assessment Report to identify potential risks and significant threats to water resources in our region.

Once we have a better understanding of what is occurring in the Source Protection Area from a scientific standpoint, we will have insight of how best to protect it. Source Protection Plans will help to safeguard our Municipal residential drinking water resources for present and future use.



The Source Protection Plan will:

- ◇ Ensure that enough safe, clean drinking water is available for ourselves and the environment.
- ◇ Protect current and future sources of Municipal drinking water.
- ◇ Safeguard our health and the health of our families.

Lakehead Source Protection Area

The Lakehead Source Protection Area is one of 19 Source Protection Areas or Regions established across the province by the "Clean Water Act". A Source Protection Authority and a Source Protection Committee have been formed in each of the Areas and Regions and are charged with the process for developing local Source Protection Plans on a watershed basis.

The watershed of the Lakehead Source Protection Area is 11,526 square kilometres, and is the largest by area in the province. The watershed which is characterized largely by shallow soils over bedrock is drained by 22 river systems that flow in a south easterly direction into Lake Superior. The five major river systems in the watershed are the Kaministiquia, Neebing, McIntyre, Current and Wolf Rivers.

The population of the defined area is 121,829, which is sparse when compared to southern Ontario. Thunder Bay is the major urban centre with a population of approximately 110,000 representing about 90 per cent of the total population for the area.



Municipalities

The City of Thunder Bay and the Municipality of Oliver Paipoonge are the only two organized Municipalities within the Lakehead Source Protection Area served by Municipal residential drinking water systems. Approximately 92% of residents in the City of Thunder Bay receive their drinking water from the Bare Point Water Treatment Plant which operates a surface water intake on Lake Superior. An estimated 8% of the residents of the City of Thunder Bay receive their drinking water from private wells accessing groundwater sources.



The hamlet of Rosslyn Village in Municipality of Oliver Paipoonge is the other local community served by a Municipal residential drinking water system in the Lakehead Source Protection Area. There are about 30 properties in Rosslyn Village served by the Municipal residential drinking water system. Approximately 60 homes with private wells access the same groundwater aquifer for their supply of drinking water.

The six other Municipalities in the jurisdiction of the Lakehead Source Protection Area do not have Municipal residential drinking water systems. They include the Municipalities of Shuniah and Neebing and the Townships of Dorion, Conmee, O'Connor and Gillies. Residents of these rural communities obtain their drinking water through private groundwater wells.

There are unorganized townships outside the jurisdictional boundary of the Lakehead Region Conservation Authority that lie within the boundary of the Lakehead Source Protection Area. The residents of these rural areas obtain their drinking water from private groundwater wells.

The water resources within the boundaries of the Lakehead Source Protection Area are documented in the Watershed Characterization Report. The Report includes scientific data, historical accounts, background information and maps that define the geography, geology, hydrology, and socio-economic makeup of the watershed. Visit www.sourceprotection.net for more information.

Who is involved with Source Protection?



LANDOWNERS

Landowners are responsible for maintenance of their private property and the prevention of pollutants from private wells, septic systems and other sources from entering into local water resources.

MUNICIPALITIES

Municipalities oversee land use plans and growth strategies for the design and operation of Municipal drinking water systems and sewage plants.

SOURCE PROTECTION COMMITTEE (SPC)

The SPC guides the development of the Source Protection Plan in conjunction with Municipalities, property owners and other stakeholders to protect Municipal residential drinking water quality and quantity.

SOURCE PROTECTION AUTHORITY (SPA)

The SPA is responsible for administrative support to the Source Protection Planning process, including establishing the Source Protection Committee and recruitment of the Committee Chair.

CONSERVATION AUTHORITIES (CA)

The CA will provide financial oversight for the Source Protection Planning process with technical and planning support to Municipal partners and the Source Protection Committee.

THE PROVINCE

The Province provides funding and guidance to Conservation Authorities for Source Protection Planning and approves all steps in the planning process as regulated under the "Clean Water Act" once they are complete.



The Source Protection Plan for the Lakehead Source Protection Area will protect the sources of water for the two Municipal residential drinking water systems that serve the City of Thunder Bay and a portion of Rosslyn Village in the Municipality of Oliver Paipooonge.

Stages of the Planning Process

Terms of Reference



Assessment Report



Source Protection Plan

The first task of the Lakehead Source Protection Committee was to create a “Terms of Reference” which is the work plan that outlines tasks and duties and who will perform the work in the development of the Assessment Report and Source Protection Plan under the timelines specified in the Regulations of the “Clean Water Act, 2006”. The planned costs associated with delivery of the Assessment Report and Source Protection Plan are included in the budget portion of the Terms of Reference.

The Terms of Reference, after undergoing public review, must be approved by the Minister of Environment. The Lakehead Source Protection Authority submitted the Terms for Reference for the Lakehead Source Protection Area before the deadline of October 20, 2008.

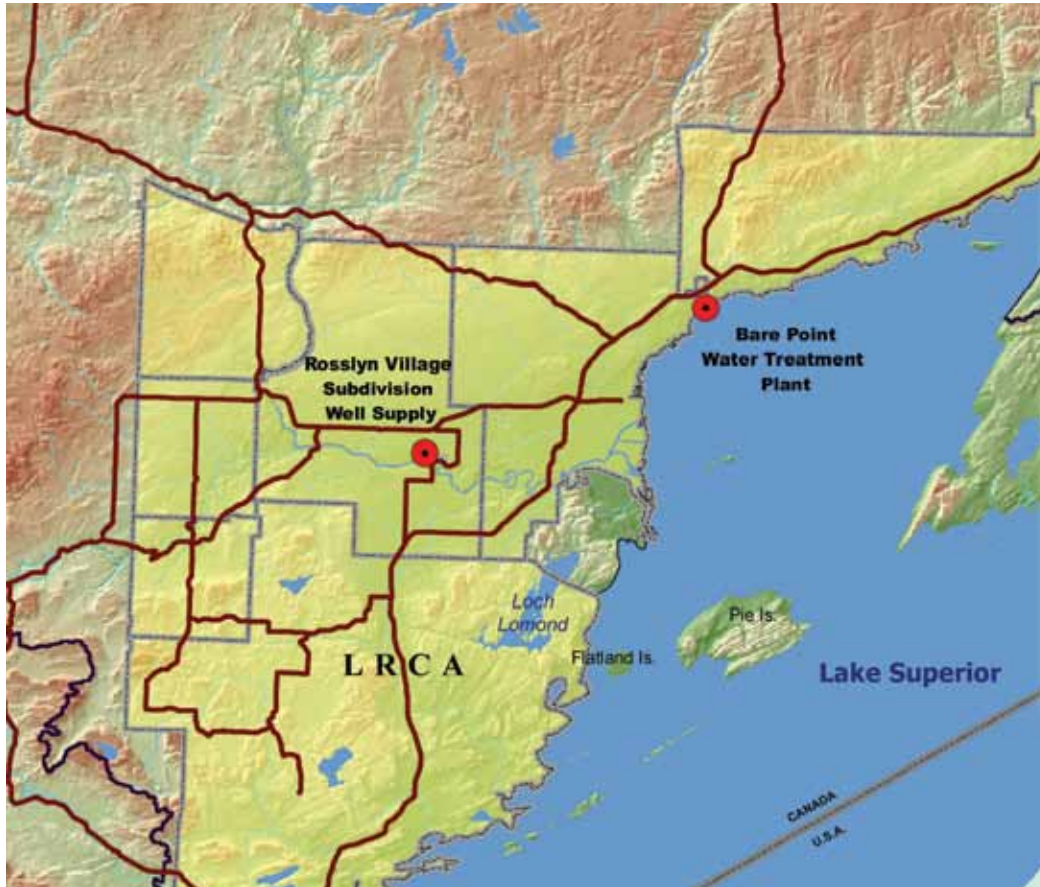
The Assessment Report is a science based report, generated locally for each Source Protection Area, to identify risks and threats to sources of Municipal residential drinking water. The Report will identify the watersheds and the vulnerable areas within the Source Protection Area. Potential risks to the vulnerable areas will be assessed and it will be determined if they pose a significant threat to Municipal residential drinking water systems.

The Assessment Report must be submitted to the Director of the Ministry of Environment by the Source Protection Authority by the first anniversary of the date that the Terms of Reference is approved.

The Source Protection Plan is a strategic document for a Source Protection Area that outlines policies and procedures to ensure that all significant and potential threats to the sources of Municipal residential drinking water systems are managed in a way that they will never become significant drinking water risks. The plan will address policies to assist meeting Great Lakes targets. Municipalities will play a central role in the implementation and enforcement of the Plan which will be monitored and revised as required by the Source Protection Committee.

The Source Protection Plan must be submitted to the Minister of Environment by the Source Protection Authority, by August 20, 2012.

Protecting Municipal Drinking Water Systems



A Municipal residential drinking water system is a water treatment and distribution facility that is owned and/or operated by the Municipality to provide potable drinking water for the residents in its community.



The Lakehead Source Protection Committee will produce a Source Protection Plan to protect the source water for the two Municipal residential drinking water systems identified in the Terms of Reference for the Lakehead Source Protection Area. The two Municipal systems named in the Terms of Reference serve the City of Thunder Bay and Rosslyn Village.

Lake Superior is the single source of Municipal residential drinking water for the City of Thunder Bay. The Bare Point Water Treatment Plant draws water from Lake Superior through a surface water intake located approximately 750 metres out in the lake to supply over 100,000 residents with potable water.

Rosslyn Village, a small community located outside the City of Thunder Bay in the Municipality of Oliver Paipoonge has a Municipal well system that serves about 30 homes. The Rosslyn Village Subdivision Well Supply draws its water from two drilled wells fed by a groundwater aquifer.



Engaging the Planning Process

Committee Selection

The Lakehead Source Protection Committee, in partnership with local Municipalities and community stakeholders, is working toward a deadline of August 2012 to produce a local, science-based Source Protection Plan for the Lakehead Source Protection Area.

Members of the Lakehead Source Protection Committee were appointed in November 2007 by the Lakehead Source Protection Authority after a review of applications from a publicly advertised process. The Committee, by Regulation of the "Clean Water Act", has equal representation across three defined sectors: "Municipal", "Industry/Economic" and "Public & Other Interests", and a seat assigned for a First Nations representative.

There are three Municipal representatives on the Lakehead Source Protection Committee, including two members from the City of Thunder Bay and one from the Municipality of Oliver Paipoonge. Municipal Members were selected from the two Municipalities with Municipal residential drinking water systems.

Three Members were named to reflect the key economic and industrial sectors of the local area. Members were selected to represent marine and terrestrial ground transportation, the forest Industry and agriculture. The three Members for the "Public and Other Interests" Sector were chosen to represent education, tourism and the general public.

The Committee also includes three non-voting Liaison Members who represent the Lakehead Source Protection Authority, public health through the Thunder Bay District Health Unit and the Ontario Government through the Ministry of Environment.



The media spokesperson, Bob Hartley, Chairman of the Lakehead Source Protection Committee is interviewed by the local media.

Public Consultation is a requirement of the Regulated process to produce the Terms of Reference, Assessment Report and Source Protection Plan. Opportunities to provide comment and feedback on the process are made available for all stakeholders including the public, businesses, industry, Municipalities, and First Nations who live or work within the Lakehead Source Protection Area.

The Lakehead Source Protection Committee and the Lakehead Source Protection Authority encourage public input in a number of ways. Notices are posted in local newspapers, on the Internet (www.sourceprotection.net) and at public viewing stations to inform and provide community residents with the opportunity to comment and review documents within a defined comment period. Open Houses are part of outreach activities intended to educate and inform residents in the community.

What is an Intake Protection Zone?



DID YOU KNOW?
Over 70 per cent of Ontario residents get their drinking water from the Great Lakes!

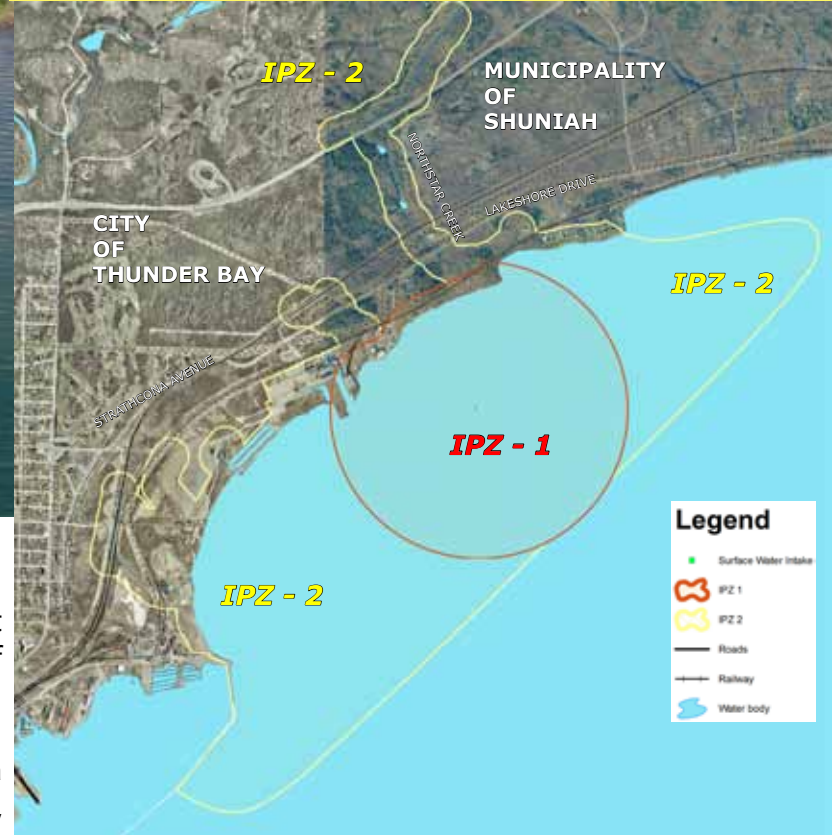
The Bare Point Water Treatment Plant supplies 92 percent of the population of the City of Thunder Bay with Municipal residential drinking water. Surface water from Lake Superior is the single source that supplies the plant with raw water from an intake located approximately 750 metres out in the lake. The Plant, which went through a major upgrade completed in 2007, has a capacity to produce 113.5 million litres of water per day.

Intake Protection Zone

The “Intake Protection Zone” is the area around the surface water intake defined to protect the surrounding water and, in most cases, the land that surrounds the water. This area of water and land is known as an intake protection zone, or IPZ.

Intake protection zones in a large lake, such as Lake Superior, end up in the shape of a circle out in the water around the intake but also include the influence of the shoreline, land use activities and the flow of rivers and streams that flow into the lake.

Time of travel zones to the intake are established on the amount of time it would take any material spilled in or near a lake, river or stream to flow downstream to the intake. The area immediately adjacent to the intake, usually a 1-kilometre radius (red outline) is referred to as the IPZ-1. The next zone of influence, the IPZ-2 (black outline), would allow a water plant operator a two-hour time of travel to deal with a spill. The IPZ-3 covers a larger part of the watershed that may be impacted by an extreme storm event termed the 100-year storm.



What is a Wellhead Protection Area?



The Municipal residential drinking water for Rosslyn Village comes from a groundwater aquifer that feeds two drilled Municipal wells. The source water is piped to the Municipal system where it is chlorinated and distributed to approximately 30 homes. The same groundwater aquifer also supplies water to homes with private wells.

The Wellhead Protection Area map (inset) shows the recharge area for the two Municipal wells. Time of travel zones ranging from two to twenty-five years illustrate where land use activities have the potential to impact the quality of water and quantity of water.

The red circle is the 100 metre zone around the wellhead where land use activities have the potential to pose the most significant threat to the groundwater source. The yellow zone is the 2-year time of travel, the purple zone is the 5-year time of travel and the aqua zone is the 25-year time of travel.

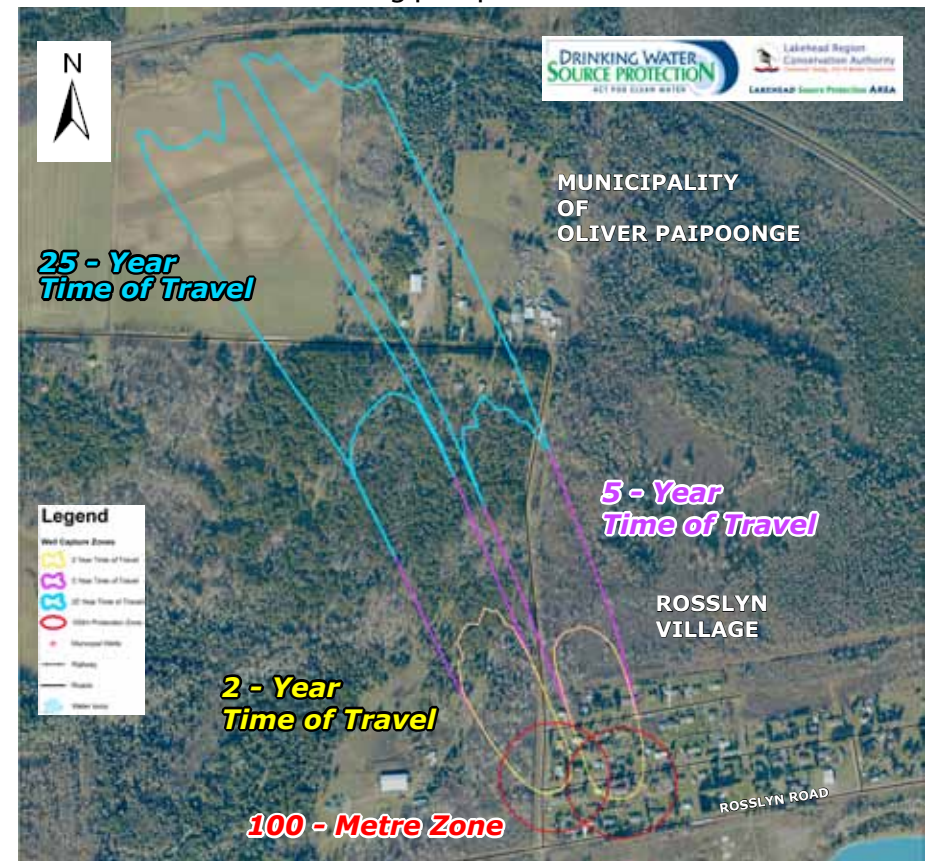
Wellhead Protection Area

A wellhead protection area is the area around the wellhead where land use activities have the potential to affect the quality of water that flows into a well. A wellhead is simply the physical structure of the well above ground.

Time of travel zones, or how long it takes water to move underground to the well itself, are set out in two, five and twenty-five year time of travel zones with a 100 metre time of travel zone in the immediate area around the wellhead.

Factors that will determine the direction and speed groundwater travels to the well are:

- ◇ The rises and falls of the land in the travel zones
- ◇ The type of soil surrounding the well
- ◇ The type of aquifer
- ◇ The amount of water being pumped from the well.



What is a Groundwater Aquifer?

The groundwater aquifer that supplies the Municipal wells for Rosslyn Village is a basal sand and gravel aquifer located approximately 35 metres below ground.

The aquifer is protected by a confined layer of clay soil that is up to 35 metres deep. As clay is a fairly non-permeable soil, this layer allows for some protection from contaminants penetrating the soil from the ground above.

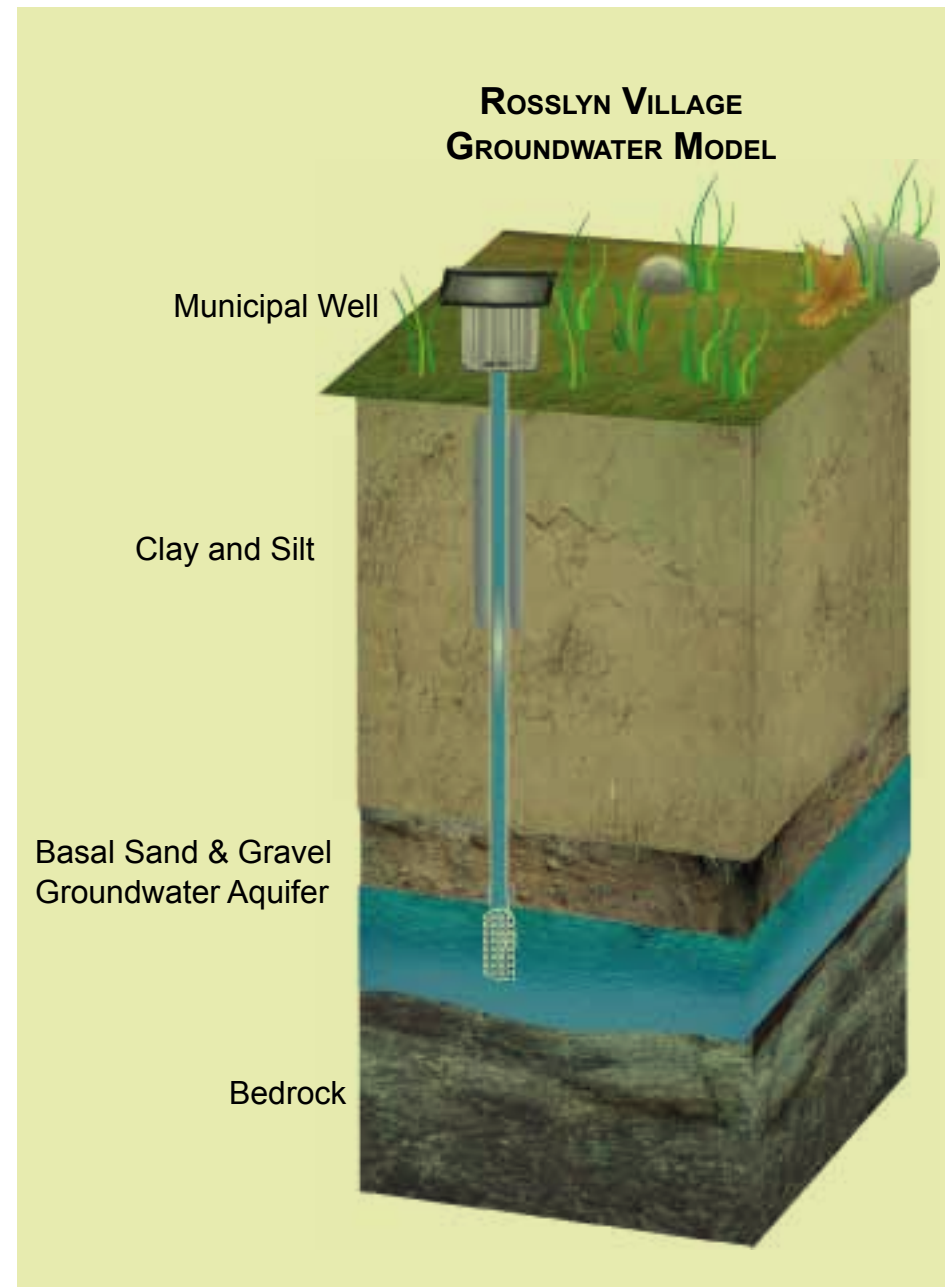


Groundwater collects beneath the earth's surface between the cracks and spaces in soil, sand and rock. It moves very slowly through the ground where it can collect in large quantities to form aquifers.

The rate at which water moves through the ground depends on the makeup of the soil or rock. The process can take weeks or hundreds of years with the soil and fractures in rock acting as a natural filter to remove some impurities.

A number of factors are considered during a scientific study to determine if aquifers can be considered highly vulnerable. The factors include how deep the aquifer is underground, what sort of soil or rock is covering it and the what are the characteristics of the soil or rock.

Aquifers are areas within soil or rock (i.e. cracks or spaces) under the ground where water pools.



Assessing Risks and Threats

The Assessment Report will identify any potential threats and risks to the sources of water for the two Municipal residential drinking water systems listed in the Terms of Reference for the Lakehead Source Protection Area. The Source Protection Committee will take a science-based approach using technical studies and scientific reports completed as part of the Source Protection Planning process to identify and quantify the risks and threats to the source waters for the Municipal systems serving Rosslyn Village and the City of Thunder Bay.

Property owners who live near the two Municipal systems in the City of Thunder Bay and the Municipalities of Shuniah and Oliver Paipoung will be asked through public consultation to provide their input for the protection of source water for the two Municipal systems as outlined in the Terms of Reference. Residents can expect notices in the local media, on the Internet, at public viewing stations and other public outreach events including Open Houses.

The Assessment Report will be used as a tool to assist in the development of the policies and measures required to reduce or mitigate threats, risks and issues within the Source Protection Plan.

Transportation corridors by rail, road and water have the potential to pose risks to sources of Municipal residential drinking water by the nature of the goods and products being transported.



The impacts and potential risks for contamination of source water by industry and businesses will also be examined in the development of the Assessment Report.



Septic systems located in the vulnerable area for a Municipal drinking water source could present a potential for risk to the water source. Property owners have a responsibility to ensure their septic systems are in good working order and will not present a threat to groundwater or surface water sources of drinking water.



The greatest tool in protecting water quality and quantity is taking responsibility for our actions.

Protect and Maintain Your Well

Most rural residents of Northern Ontario rely on groundwater as their source of drinking water from dug or drilled wells. If you are a property owner with your own well, it is your responsibility to protect the groundwater source for your well and potentially that of your neighbours to ensure water quality and quantity.



A properly maintained well will protect your family's health and could add to your property value. The top and sides of your well should be water tight, free of leaks and seepage to stop contaminants or foreign matters from entering your groundwater supply. Wells that are not properly maintained or left abandoned, provide a direct pathway for pollutants to contaminate the groundwater supply of your well and potentially your neighbours' wells on a larger aquifer.

In Ontario, wells that are not used or maintained for use, are legally required by the Ministry of Environment to be decommissioned by the well owner.

Outside Your Well

- ◇ Know exactly where your well is located.
- ◇ Keep potential sources of contamination or activities that may cause contamination away from your well (i.e. chemicals such as pesticides, fertilizers, fuels, animal and kitchen waste).
- ◇ Mound up the ground around well casings.
- ◇ Keep a permanent grass buffer at least 3 metres around the well.
- ◇ Do not build structures on or around your well casing.
- ◇ Watch for ground settling or water pooling around the outside of the well casing (this could indicate that surface water could be accessing your well).



Committee Members, pictured above, examine a Municipal wellhead in Rosslyn Village.

Inside Your Well

- ◇ Test your well regularly for impurities (once a year).
- ◇ Make sure that a commercially manufactured well cap or seal is securely in place
- ◇ Fill cracks or holes to prevent animals and debris from entering your well.
- ◇ Inspect the inside well with a flashlight once a year.
- ◇ Look and listen for signs of surface water seeping or running freely into the well (stains on well casing or seepage through cracks).
- ◇ Disinfect the well and plumbing with a chlorine solution after doing any work inside the well.
- ◇ Check the condition of well vents (look for flaws or cracks in the vent tubing - make sure the fine-mesh screen is in place).

You must make sure your well is constructed to provincial standards. A ideal location for a well is uphill, or a higher gradient from any potential contaminant source. Like most homeowners, you were probably not directly involved in the construction of your well. You should make yourself aware of the type of well you have, as its design and construction have a direct impact on the well's water quality and water quantity.

You should arrange to have your water tested regularly. Watch for changes in water taste, odour and colour. A sample of your well water should be tested at least once a year for potential nitrates and bacteria through your local health unit or a registered laboratory.

Protect and Maintain Your Septic System

Many rural homes and camps use a septic system to manage and treat household waste water from toilets, sinks, showers and washing machines. Septic systems provide sewage treatment by collecting wastewater in a tank and then having it leach out into a tile bed. The collection and leaching of waste water has the potential to contaminate groundwater if the system is not properly constructed or maintained in a proper manner. Like any other household equipment, proper maintenance will allow your septic system to last a long time, providing a safe and reliable way to treat household wastewater. Improper maintenance can endanger the health of your family, the local environment and nearby source water and result in expensive replacement costs - up to \$25, 000!

How does a Septic System Work? - Your household wastewater flows through pipes to an outdoor, underground holding tank. Here the solids settle and separate from the liquid. The liquid waste flows out through a series of pipes to where it is slowly released into a leaching bed. The leaching bed is made up of porous materials such as sand and gravel which acts as a filter to clean the wastewater before it seeps back into the ground. Solids like soap suds, fat and other waste are gradually decomposed by bacteria. However, there are some solids that remain forming sludge. Your septic should be pumped out every three to five years depending on the efficiency of your system.

Protecting Your Septic System

- ◇ Avoid putting food, compost or grease down the drain.
- ◇ Keep household items such as dental floss, feminine hygiene products, kitty litter, washing machine lint and other items out of your system.
- ◇ Conserve water and try to spread water use over the course of the week - including laundry.
- ◇ Avoid excessive use of anti-bacterial soaps, bleaches and harsh cleaning products.
- ◇ Protect your sewage system - avoid driving over it and do not construct anything (e.g. pools, driveways and sheds) on or near any part of the tank or bed.
- ◇ Avoid putting paints, solvents, pesticides and other toxic chemicals in your system.

Septic systems that are in good working condition help reduce the risk of drinking water contamination to both your water supply and that of your neighbours. This is important if your septic system is located near a drinking water well or surface water intake used for drinking water. Property owners have a responsibility for maintaining their septic system to minimize the risk of health and environmental problems that could affect drinking water sources for both Municipal and private systems.

Maintain your Septic System

- ◇ Know the location of your tank and leaching bed.
- ◇ Pump out your septic tank as needed (generally every 3-5 years).
- ◇ Install an effluent filter to prevent solids from entering and clogging the leaching bed - it's a cheap way to prevent costly tile bed repairs.
- ◇ Keep records of pumping, maintenance and repair.
- ◇ Make family and visitors aware of your septic system and its proper use.
- ◇ Keep trees and shrubs away from the leaching bed.

As with many homes in the area, the homes in Rosslyn Village (pictured below) are all on septic systems.



What Can You Do?

We all have a role to play in helping to protect the sources of our drinking water. The least costly way to protect water is to prevent pollution and overuse of water from occurring in the first place. If we can keep water clean as it flows through our watershed, we will benefit our health and quality of life while reducing the costs for water treatment.

We need to protect the sources of water by managing the influences on them. The best way to protect sources of water is by being environmentally responsible. How we choose to live has a huge impact on our environment, and safeguarding water quality and quantity begins with how we use water within our homes and on our properties.



10 Things You Can Do To Protect Water Quality and Quantity

In Your Yard

1. Use a rain barrel - to capture water from your downspout and use this water for your lawn and garden.
2. Use a broom to clean your driveway - not your garden hose.
3. Plant native plants and grasses as they are heat and drought resistant and require less water and care to maintain.
4. Take care when refueling gas tanks - avoid spilling on the ground as one litre of gas or oil can contaminate a million litres of groundwater!
5. Water your lawn only as much as is needed - about 2-3 centimetres per week - be careful not to water paved surfaces!
6. Consider using interlocking paving stones for your walkways and patios to minimize runoff and maximize water retention.
7. Clean up pet waste - which contains nutrients and pathogens that can run into storm drains or open wells during a rain storm.
8. Prevent pollutants from entering into runoff - by reducing or eliminating the use of pesticides, fertilizers and by not over-watering your lawn.
9. Take your car to commercial car washes - automated car washes use 50% less water than washing your car in your driveway and soap and pollutants are prevented from entering into storm sewers.
10. Use sand instead of road salt - to de-ice your walkway and driveway during the winter.

In Your House

1. Take shorter showers - a ten-minute shower can use up to 300 litres of water!
2. Turn off the tap when you brush your teeth.
3. Plug and fill the sink when you wash your face or wash the dishes.
4. Use water efficient shower heads, taps and toilets. A low flush toilet can save 45,000 litres of water a year! A weighted plastic water bottle filled with water at the bottom of your toilet tank provides an inexpensive alternative to low-flush toilets.
5. Use a faucet aerator - which breaks the flowing water into small droplets and increases water pressure while reducing the amount of water you use by as much as 60%!
6. Detect and repair leaks in pipes, toilets and taps around your home.
7. Only run washing machines and dishwashers when they are full - and choose shorter cycles.
8. Dispose of hazardous waste properly. Take any household chemicals such as paint, cleaners, pesticides and medical prescriptions to your local hazardous waste facility.
9. Use non-toxic products for cleaning. Use environmentally friendly soaps, shampoos and personal health care products.
10. Keep water in your fridge - instead of running the tap until the water is cold.

Role of the Conservation Authority

The Lakehead Region Conservation Authority provides a wide range of programs and projects aimed at an integrated approach to resource management. They include protection of life and property from natural hazards like flooding and erosion. If you are planning to build in and around water, you may require a permit from the Conservation Authority.



The Lakehead Region Conservation Authority owns and operates eight Conservation Areas which provide community access for recreation and other outdoor activities in our own backyard. The purchase of Explorer Cards helps to meet operating expenses to maintain boat ramps, hiking trails and picnic areas. To find out more about Explorer Cards or Regulation requirements, visit www.lakeheadca.com or call 807-344-5857.



How we choose to live has a huge impact on our environment and the water we drink.

Glossary of Terms for Source Protection

Assessment Report: A science-based document prepared by a Source Protection Committee under Regulation of the “Clean Water Act, 2006” to identify and rank threats and risks, to sources of Municipal residential drinking water in a Source Protection Area.

Drinking Water System: A system of works, excluding plumbing, that is established for the purpose of providing users of the system with drinking water.

Drinking Water Threat: An existing activity, possible future activity or existing condition that results from a past activity that adversely affects or has the potential to adversely affect the quality or quantity of any water that is or may be used as a source of drinking water.

Intake Protection Zone (IPZ): The area of land and surface water that contributes to a drinking water system within a specified period of time (i.e. two hours) and that is priority for protection from contamination.

Source Protection Area: Those lands and water that have been defined under Ontario Regulation 284/07 as the “study area” for an Assessment Report and a Source Protection Plan.

Source Protection Authority (SPA): A Conservation Authority or other person or body that is required to exercise powers and duties under the “Clean Water Act, 2006”. The Lakehead Source Protection Authority is comprised of the Lakehead Region Conservation Authority Board.

Source Protection Committee (SPC): A group of individuals who have been appointed under the “Clean Water Act, 2006” by the Source Protection Authority to coordinate the Source Protection Planning activities for a Source Protection Area.

Source Protection Plan (SPP): A document that is prepared by a Source Protection Committee under Section 22 of the “Clean Water Act, 2006” (and a forthcoming Regulation) to direct Source Protection Planning activities in a Source Protection Area. They are subject to approval by the Ministry of the Environment.

Source Water: Untreated water that is found in groundwater aquifers and surface water lakes, rivers and streams that is used to supply a drinking water system.

Terms of Reference: The work plan and budget that outlines tasks and duties, and who will perform the work in the development of an Assessment Report and a Source Protection Plan under the timelines specified in the Regulations of the “Clean Water Act, 2006”.

Watershed: The area of land that drains into a lake, river or a stream.

Wellhead Protection Area (WHPA): The surface and subsurface area surrounding a well that supplies a drinking water system, through which contaminants are reasonably likely to move so as to enter a well.

Websites & Protecting Source Water

More information can be found on the following websites:

Lakehead Region Conservation Authority - Watershed Management

www.lakeheadca.com

If you are on a Municipal Drinking Water System:

Source Protection in the Lakehead Source Protection Area

www.sourceprotection.net

“Clean Water Act, 2006” - Ministry of the Environment

www.ene.gov.on.ca/en/water/cleanwater/

Municipal Drinking Water and the “Clean Water Act, 2006”

www.ontario.ca/ONT/portal51/drinkingwater

Conservation Ontario

www.conservation-ontario.on.ca

If you are on a Private Drinking Water System:

Drinking Water and the “Safe Drinking Water Act”

www.ontario.ca/ONT/portal51/drinkingwater

Septic Systems and the Ontario Rural Wastewater Center:

www.orwc.uoguelph.ca

Directory of Licensed Well Contractors

<http://209.47.226.245>

Thunder Bay District Health Unit

www.tbdhu.com

Well Wise - Resources and Research for Well Owners

www.wellwise.ca

Well Aware - A Guide to Caring for Your Well

www.wellaware.ca



DRINKING WATER SOURCE PROTECTION

WATERSHED CONNECTIONS

WHERE EVERYONE LIVES DOWNSTREAM



PROTECTING MUNICIPAL RESIDENTIAL DRINKING WATER

SOURCE PROTECTION is the risk management of untreated surface water and groundwater that supplies Municipal residential drinking water systems.

The "Clean Water Act, 2006" legislated by the Government of Ontario regulates how Municipalities, Conservation Authorities, community stakeholders and the public will work together to produce Source Protection Plans.

Source Protection Plans will be developed on a local watershed basis to ensure the protection of sources of Municipal residential drinking water in 19 Source Protection Areas and Regions across the province.

The process, which was enacted into law in July 2007 will examine land use activities and the impact those activities may have on the quality and quantity of source water supplying a Municipal residential drinking water system.

Scientific and technical studies will provide insight to identify potential and significant risks in the Assessment Report. With a better understanding of how to protect source water from a scientific standpoint, the Lakehead Source Protection Committee will produce a Source Protection Plan to safeguard Municipal residential drinking water sources for present and future use.

www.sourceprotection.net

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